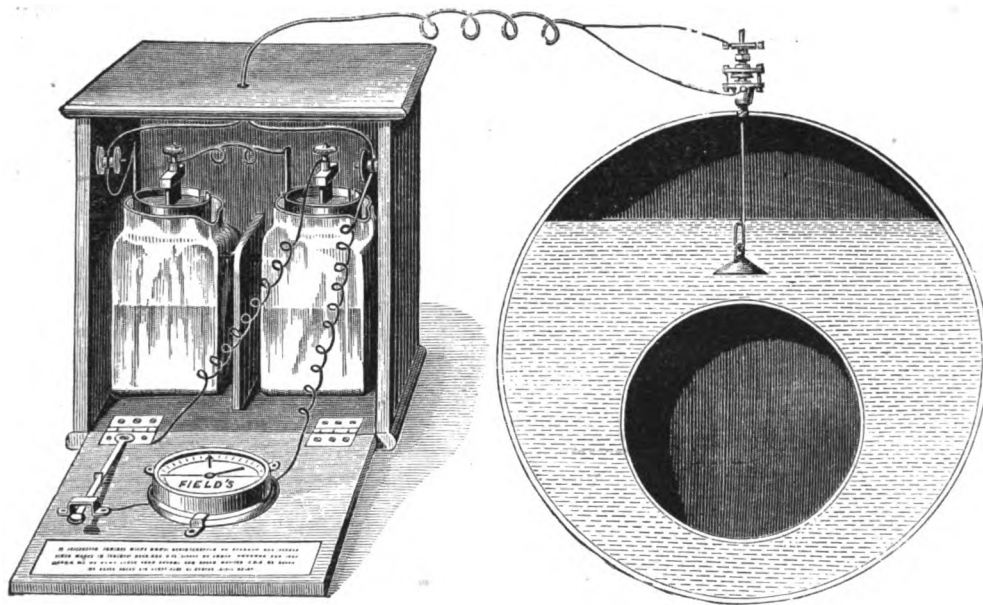


BY ROYAL



LETTERS PATENT.

## FIELD'S PATENT GALVANIC BOILER SCALE PREVENTER.



PERSPECTIVE VIEW OF CASE CONTAINING GALVANIC BATTERY AND CONNECTIONS WITH BOILER.  
 SIZE OF CASE WHEN CLOSED, ABOUT  $10\frac{1}{2}$  INCHES WIDE, 9 INCHES DEEP,  $12\frac{1}{2}$  INCHES HIGH.

The attention of employers of steam power is invited to a very simple, inexpensive, and *perfectly effectual* means of *preventing the formation of SCALE OR CRUST IN BOILERS*, invented and patented by Mr. EDWARD FIELD, C.E., Assoc. Inst. C.E., M. Inst. M.E., the well-known inventor of the "Field" Boiler.

In the course of a vast number of experiments carried on during many years as to the prevention of SCALE, and after careful testing of the various compounds used for that purpose, Mr. Field found such remedies to be mere palliatives, and that the cause of the solidification of the precipitated matter remained to be discovered and removed.

It is known that there exists naturally an electrical current in Boilers, or in other words, that *every Boiler* when charged with water and under steam, constitutes an electric battery developing a current of electricity ; and thus the iron plates of the Boiler are in such an electrical condition as to favour, or rather to *invite*, the deposit and adhesion of solid matter. Mr. FIELD, therefore, devised means whereby this current should be reversed, and found that during the time his apparatus was used, not only had no new deposit formed on the Boiler, but that SCALE which previously existed was being removed.

An eminent authority on Steam Boilers, writing on the subject of incrustation, remarks : " One of the greatest, and at the same time, one of the most frequent difficulties steam users have to contend with, is the formation of deposit and incrustation, or, as it is also called, scurf, scale, or fur, in their Boilers. Incrustation becomes a source, not only of annoyance and wasteful expenditure of fuel, but also of *actual danger from explosion*, and tends greatly to shorten the life of the Boiler."

The advantages attending the use of " FIELD'S Patent Galvanic Boiler Scale Preventer " are as follows :

- 1st. The apparatus is simple, not liable to get out of order, and when once fixed is continuous in its action.
- 2nd. It produces no injurious effect on the Boiler, such as results from some of the chemical compounds now in use.
- 3rd. The Boilers so protected never require to be stopped for chipping.
- 4th. The whole heating surface of the Boiler being perfectly clean, its evaporative capability is always at its maximum, an average gain of at least 15 per cent. over an encrusted Boiler.
- 5th. The danger of explosion is materially lessened, as the plates, being clean, are not overheated or burned.
- 6th. The Boiler being clean, any defects are at once apparent.
- 7th. It is certain in its action with all kinds of water.
- 8th. The expense of thus perfectly protecting a Boiler from SCALE is far less than that of palliative chemical salts, saying nothing of the avoidance of loss of time and the injury done to the Boiler by chipping.

W. L. THOMPSON AND CO.,

OFFICES: 11, QUEEN VICTORIA STREET, LONDON, E.C.

FIELD'S Galvanic Scale Preventer is confidently recommended to all users of Steam Boilers and Water Heaters as the most certain and inexpensive mode of preventing SCALE.

The apparatus is forwarded complete, with full instructions for fixing (which can be done by any engineer or fitter in about two hours). In forwarding orders, please state, in each case, description of Boiler, the distance between the *top* of the Boiler and the low-water line, depth of water over tubes or plate, also the distance from the Boiler to the place where the apparatus will be situated, as if you were measuring for bell wire.

The apparatus should be kept in the Engine House, or Engineer's room or office.

## TESTIMONIALS.

SIR,

During the two years or so that Mr. FIELD'S Galvanic Apparatus has been tried on our boilers, it has *perfectly* fulfilled its object in *preventing the formation of Scale*.

[Messrs. J. C. & J. Field have since ordered the whole of their Boilers (twelve in number) to be fitted with this Apparatus].

LAMBETH UPPER MARSH, LONDON, S.,  
10th July, 1873.

Yours truly,

J. C. & J. FIELD.

BATTERSEA WORKS, 20th January, 1874.

Since I last wrote you respecting the working of Mr. E. FIELD'S Galvanic Boiler Scale Preventer, I have had the *new Boiler*, to which the apparatus was attached, opened and carefully examined, and am pleased to report that, after five months' continuous work, *double time*, there is merely a thin film of Scale, despite the fact that the Boiler was at work eight days and nights before the apparatus was applied.

Yours truly,

ARTHUR SMITH.

VICTORIA WORKS, COAL YARD, DRURY LANE, LONDON, W.C.,  
24th October, 1873.

DEAR SIR,

In answer to your inquiry respecting the action of FIELD'S Patent Boiler Scale Preventer, we are pleased to tell you that it has fully answered our expectations; the Boiler did not require cleaning when last opened, after four months' continuous work; under ordinary circumstances the Scale would have been about  $\frac{1}{4}$  inch thick.

We are, dear Sir, yours respectfully,

For A. MCGLASHAN & CO., (J. D.)

GLASS AND PICTURE FRAME MANUFACTORY, 47 $\frac{1}{2}$ , ARLINGTON STREET, ISLINGTON, N.  
13th April, 1874.

SIR,

Enclosed is cheque for the FIELD'S Patent Boiler Scale Preventer you put up for us, which gives great satisfaction. No doubt, if it was only known, you would be able to dispose of thousands.

Yours truly,

ROLFE & HARRIS.

ENGINE WORKS, MANSFIELD WHARF, LEICESTER,  
23rd April, 1874.

DEAR SIR,

In answer to your inquiries respecting FIELD'S Patent Scale Preventer, I am glad to be able to say that it has given great satisfaction. Before attaching the apparatus, I had a portion of the plate cleaned, and on opening the Boiler after the apparatus had been at work twelve weeks, I found no incrustation whatever, but a great deal of old Scale was being removed. For twelve months previous to Christmas I had been using a Boiler Fluid, which cost me £3 14s. per quarter of thirteen weeks. I find your apparatus has cost about 2s., and does the work most effectually.

I am, dear Sir, yours obediently,

C. LINFORD.

SAW MILLS, 33, WHARF ROAD, CITY ROAD, LONDON, N.,  
3rd June, 1874.

DEAR SIR,

Having tried FIELD'S Scale Preventer for six months, I have found it to answer thoroughly well, and would recommend all persons using same for their Boilers. Since using this apparatus, I have found a saving of fully 20 per cent. in coal.

Yours truly,

H. ATKINSON.

ABBAY MILLS, WEST HAM, E.,  
19th June, 1874.

DEAR SIR,

We have much pleasure in bearing testimony to the efficiency of FIELD'S Boiler Scale Preventer. The appearance of our Boiler after five months' working, shows not only that no further incrustation has taken place, but also that the old incrustation is rapidly disappearing. It is in every way satisfactory.

We are, dear Sir, your obedient servants,

WM. GOODACRE & CO.

W. L. THOMPSON AND CO.,

OFFICES: 11, QUEEN VICTORIA STREET, LONDON, E.C.

DEAR SIR,

We have the pleasure to inform you that the Scale Preventer affixed to the Boilers at our Lambeth Fire Engine Factory is a perfect success. They were examined at Whitsuntide, and were found to be entirely free from any deposit whatever.

We are, dear Sir, yours faithfully,

67, LONG ACRE, LONDON, W.C.,  
18th June, 1874.

MERRYWEATHER &amp; SONS.

DEAR SIR,

I have examined the Boiler to which I applied Mr. FIELD'S Patent Galvanic Scale Preventer in February last, and find the original Scale, which was too hard to chip off, can be picked off with the finger where it has not shelled off already. The result is a great saving in coal.

Yours truly,

JAMES FRANCK.

CHENIS IRON-WORKS, near RICKMANSWORTH,  
17th July, 1874.

GENTLEMEN,

We have applied one of the Patent "Galvanic Scale Preventers," invented by Mr. E. FIELD, C.E., to our Boiler, which is one of Messrs. W. and J. Galloway's Patent Boilers, made entirely of steel; the Boiler was thickly incrustated when the Preventer was applied, and on examination five weeks afterwards the whole of the Scale had been removed, and the plates were quite free from deposit. We have continued the use of the apparatus with a result quite satisfactory to ourselves, and have also recommended it to several of our friends.

We are, Gentlemen, yours truly,

POLLOCK &amp; POLLOCK.

LONGCLOSE WORKS, NEWTON, LEEDS,  
2nd March, 1875.

DEAR SIR,

We are in receipt of yours of the 8th instant. We have pleasure in informing you that the Galvanic Scale Preventer, which we have had in use at Almond Iron-Works for about six months, has given us entire satisfaction. It *completely prevents* any crust from forming on the plates of the Boiler.

Yours truly,

JAMES RUSSEL &amp; SONS,

Per HENRY AITKEN.

Messrs. E. Bennis &amp; Co.

P.S.—Please send us two more Scale Preventers. [This firm now has ten at work].

BLACKBRAES AND BOGHEAD COLLIERY, AND ALMOND IRON-WORKS, FALKIRK,  
March 9th, 1875.

From JOHN PRIESTMAN AND CO.

BRADFORD, 1st July, 1875.

In answer to your inquiry respecting the Scale Preventer, we have much pleasure in saying that they appear to be answering *well*. There has been no fresh incrustation, and that which was on previously is coming off gradually. We beg to forward you cheque for £75 18s., in settlement of account.

[N.B.—This firm has six at work].

DEAR FRIENDS,

MEDOMSLEY EDGE COLLIERY, by NEWCASTLE-ON-TYNE,  
14th of 6th Mo., 1875.

The Scale Preventer which I purchased from you *answers very well*. For several weeks it did not appear to do much good; the water is very bad, and the boiler had been much "furred" before we began to use your apparatus. Now we find that the Scale does not crystallize as it did to the inside of the boiler, but falls as dirt to the bottom, and is removed by frequent sludging, so that I am *much pleased* with the results, and regard the apparatus as a great boon where pure water cannot be procured.

I remain, your sincere friend,

EDWIN O. TREGELLES.

DEAR SIR,

BLACKBRAES AND BOGHEAD COLLIERIES, AND ALMOND IRON-WORKS, FALKIRK,  
16th June, 1875.

Yours of yesterday. If the Scale Preventers you refer to are those sold by E. BENNIS & Co., I reply *that they are THE THING—no doubt about it*; at least, for such water as we have at Almond *they are perfect*.

Yours truly,

HENRY AITKEN.

B. M. Macrae, Esq., Gas Works, Dundee.

[N.B.—This firm has ten at work].

GENTLEMEN,

THE BRITISH GASLIGHT COMPANY, LIMITED, NORWICH,  
14th August, 1875.

In reply to your inquiry, I beg to inform you that one of our boilers fitted with "FIELD'S Patent Galvanic Scale Preventer" was blown off on the 2nd inst., having been at work without intermission since 15th June, a period of 1152 hours, equal to about twenty weeks' factory work. The boiler is about fourteen years old, but I found no symptom of Scale in it, and it was only necessary to scrub it over with a broom to remove a slight coating of dust. I consider the apparatus is entirely successful.

And am, Gentlemen, yours truly,

C. TADMAN, MANAGER.

W. L. THOMPSON AND CO.,

OFFICES: 11, QUEEN VICTORIA STREET, LONDON, E.C.

# W. L. THOMPSON AND CO.,

*Manufacturers and Contractors for the application of Non-conducting Coverings on Steam Boilers, Cylinders and Pipes,*

AND STEAM SURFACES OF EVERY DESCRIPTION,

FOR PREVENTING THE RADIATION OF HEAT, EFFECTING A GREAT SAVING IN CONSUMPTION OF FUEL,  
AND A CORRESPONDING INCREASE IN STEAM POWER,

AS SUPPLIED

To the Royal  
Arsenal, Woolwich,



And the Metropolitan  
Board of Works.

This Composition is proved, by experience, to be the most effective and durable yet produced; and is the most perfect Non-conductor of Heat now manufactured. It forms a fine, hard, smooth surface, and, if desired, can be painted or tarred, thus making it IMPERVIOUS TO WEATHER FOR OUTSIDE WORK.

## IT POSSESSES THE FOLLOWING ADVANTAGES:

It is SELF-ADHESIVE, WILL NOT COMMUNICATE FIRE, and is NON-CORROSIVE.

It expands and contracts with the metal covered, and DOES NOT CRACK OR PEEL OFF, nor is it friable; it will not take fire or perish, though in contact with a high degree of heat, and does not cause ANY INJURY to the Boiler Plates, being free from ALL CORROSIVE elements.

It forms a DURABLE and PERMANENT COVERING.

It has now been in use some years, and exhibits no signs of decay; although, in many cases, it is applied to Boilers working very high pressures, and will stand rough usage. LEAKAGE is DETECTED immediately by the softening of the composition. In this respect it is SUPERIOR to FELT and many other coverings, as the parts affected can have the composition taken off and re-applied, making the surface sound and good.

The Composition can be supplied in Casks (mixed) all ready for use. Price £            per Ton, delivered at a London Railway Station or Wharf. A Ton of the Composition in state as sent will cover 200 square feet  $1\frac{1}{4}$  inch thick, which is sufficient for most purposes.

BOILERS, CYLINDERS, PIPES, &c., &c., COVERED COMPLETE BY COMPETENT WORKMEN in a neat and substantial manner, at a price per superficial foot. Outside measurement is charged.

**In use at most of the principal Breweries, Sugar Refineries, &c., &c., and highly recommended by leading Engineers.**

*Any number of References and Testimonials can be given on application at the Offices, 11, Queen Victoria Street, London, E.C.*

# W. L. THOMPSON AND CO.,

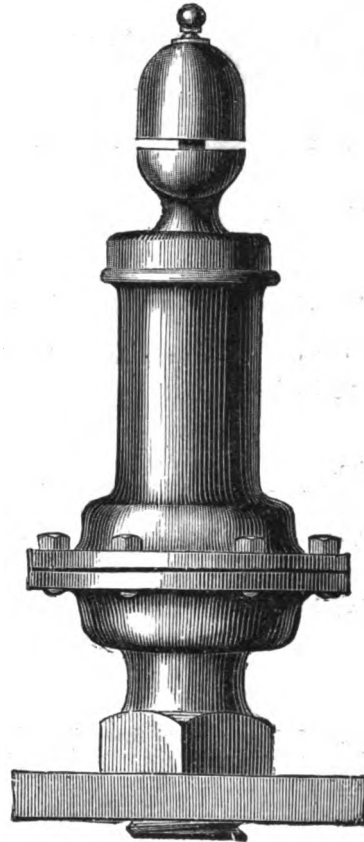
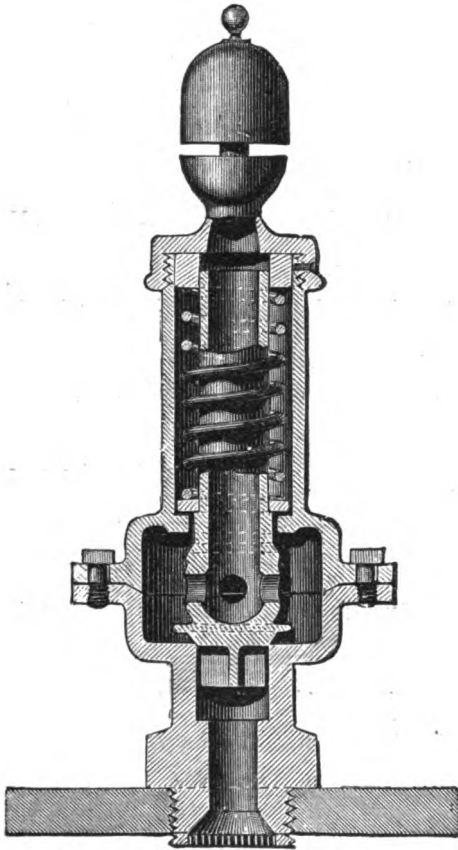
OFFICES: 11, QUEEN VICTORIA STREET, LONDON, E.C.

The attention of Engineers, Boiler Makers, and users of Steam Power is respectfully called to

## SMITH'S PATENT STEAM SENTINEL,

Which combines in one instrument a PERFECT SAFETY VALVE, PRESSURE INDICATOR, and ALARM.

Being wholly enclosed, it CANNOT BE TAMPERED WITH.



A special advantage attaching to this novel and simple invention is that it CAN BE FIXED ON ANY BOILER IN TWO HOURS without breaking the manhole joint or interfering with the ordinary course of work.

It is a check against ordinary pressure gauges and safety valves of all kinds; it is a SENTINEL, guarding against irregularities, overloading, or carelessness, and warning against over-pressure from any cause. It may be relied upon when floats, gauges, or ordinary safety valves get out of order by natural corrosion or other causes not discovered until an EXPLOSION, RESULTING IN A WHOLESALE DESTRUCTION OF LIFE AND PROPERTY, has called attention to the faulty condition of these appliances TOO LATE.

These STEAM SENTINELS are regulated to any required pressure and tested before delivery, **AND SOUND AN ALARM WHEN THE PROPER PRESSURE IS EXCEEDED.**

The STEAM SENTINEL is made in different sizes, to suit boilers from 1 horse-power to 1000 horse-power.

The "SENTINELS" are all made of the best Gun Metal at the following prices:

From 1 to 10 horse-power.. ..	£1 10 0	From 30 to 50 horse-power.. ..	£3 3 0
„ 10 to 30 „ .. ..	2 2 0	„ 50 and upwards .. ..	5 5 0

**Lock-up Safety Valves on the Sentinel principle, without the Alarm Whistle, to suit Boilers from 4 to 1000 horse-power, to blow-off at any given pressure.**

W. L. THOMPSON AND CO.,

OFFICES: 11, QUEEN VICTORIA STREET, LONDON, E.C.

## TESTIMONIALS AND EXTRACTS.

DEAR SIR,

27, LEADENHALL STREET, LONDON,  
20th July, 1874.

Having examined your "Steam Sentinel," which is fixed to the Cornish Boiler at the Works of Messrs. Little and Sons, Haggerston, N.E., and made experiments to ascertain its capabilities, I am of opinion that it is a very valuable instrument for checking the safety valves, and ought to be fitted to every steam boiler. It will absolutely prevent overloading the safety valve, and will give warning when the maximum working pressure is attained—and as the "Sentinel" is completely locked up it cannot be tampered with. It is also a valuable check on the pressure gauge, thus adding in several ways to the security of the Boilers to which it is fitted.

I am, dear Sir, yours truly,

Mr. John Smith.

LEWIS OLRICK,  
Consulting Engineer, &c., Memb. Inst. M.E.

From Messrs. BULLIVANT AND ALLEN, Wire Rope and Telegraph Cable Manufacturers, Millwall, Poplar, London, E.

DEAR SIR,

27th September, 1873.

"The Steam Sentinel," has now been in use for six months, during which time it has given us every satisfaction.

To Mr. John Smith.

Pro BULLIVANT AND ALLAN, (J. SELBY).

DEAR SIR,

12th October, 1873.

After seven months' use of your "Patent Steam Sentinel Safety Valve," we have much pleasure in stating we have every confidence in its prompt and accurate action, and have proved the value of the Sentinel on one particular occasion, and intend fixing them to our new Boilers at the Victoria Park Mills.

Yours respectfully,

To Mr. John Smith.

J. LITTLE AND SONS,  
Sawing and Moulding Mills, Haggerston, N.E.

SIR,

44 AND 45, GRANGE WALK, BERMONDSEY,  
27th March, 1875.

We find your Patent Steam "Sentinel" answers very well indeed in our Cornish Boiler, and shall be glad if you will send us another for our vertical Boiler at your earliest convenience.

We are, yours respectfully,

THOMAS WILSON &amp; CO.

From THE PERSEVERANCE CO-OPERATIVE BOILER MAKING AND IRON SHIP BUILDING COMPANY (Limited), New King Street, Deptford, S.E.

DEAR SIR,

26th September, 1873.

In answer to your favour, we beg to say we have great confidence in your "Patent Steam Sentinel," and shall recommend them to the notice of all our clients. We intend fixing one to our Boiler on the Works, as we are confident of its use as a check on the pressure gauge and safety valve.

Yours faithfully,

To Mr. John Smith.

P. B. &amp; CO., (J. JACOBS).

SIR,

STEAM BOILER WORKS, CITY BRIDGE, STRATFORD, E.,  
16th July, 1874.

I consider your "Steam Sentinel" to be a first-class instrument for preventing over-pressure in Boilers. I shall recommend them whenever an opportunity offers.

I am, yours respectfully,

Mr. John Smith.

FREDERICK WARE.

W. L. THOMPSON AND CO.,  
OFFICES: 11, QUEEN VICTORIA STREET, LONDON, E.C.

DEAR SIR,

OAK BREWERY, HASSARD STREET, HACKNEY ROAD, N.E.,  
5th October, 1873.

We have now used your "Steam Sentinel" over nine months, and have proved its merits at various times, giving warning when the safety valve failed to act, thus preventing undue pressure that might have ended in an accident or explosion. We may further state that the Sentinel has not varied from its original pressure of 40 pounds during the entire period of its use.

To Mr. John Smith.

BELCHER & STAGG.

DEAR SIR,

COMMERCIAL BREWERY COMPANY, COMMERCIAL ROAD, E.,  
6th April, 1875.

Your Patent "Steam Sentinel" fixed to our Boiler some months back gives the most perfect satisfaction. We consider every steam Boiler ought to have one fixed to same, to prevent the working pressure being exceeded, and danger to life, boiler, and property.

We shall have great pleasure in recommending the "Sentinel" to the notice of all our friends using steam power.

Yours truly,

To J. Smith, Esq.

BONNER & CO.

DEAR SIR,

BUTTON WORKS, BROMLEY-BY-BOW, LONDON, E.,  
9th October, 1873.

We have now had your Patent "Sentinel" Safety Valve on our 25 H.-P. Cornish Boiler some months, and consider it a complete safeguard, and will prevent an accident or explosion from undue pressure to any Boiler using same, and further state we are perfectly satisfied with its action.

To Mr. John Smith, Consulting Engineer.

E. MINCHER & CO.

*The following are a few of the Firms that have adopted the PATENT STEAM SENTINEL:*

THE TYNE ALKALI COMPANY, LIMITED, South Shields.

THE SUNDERLAND AND SOUTH SHIELDS WATER COMPANY, Sunderland.

THE GLAMORGANSHIRE COLLIERY COMPANY, LIMITED, South Wales.

Messrs. BALDWIN, Engineers, Burnham, Bucks.

THE PERSEVERANCE BOILER MAKERS' COMPANY, LIMITED, King Street, Deptford, London, S.E.

Messrs. PARSONS, Saw Mills, Shaftesbury Park Estate, Wandsworth, London, S.W.

" BULLIVANT AND ALLEN, Wire Rope Works, Millwall, London, E.

" LITTLE AND SONS, Saw Mills, Haggerston Wharf, London, N.E.; and Victoria Mills, Victoria Park, E.

" BELCHER AND STAGG, Oak Brewery, Hassard Street, Hackney Road, London, E.

" SAGE AND CO., Engineers, the Island of Java.

" VICKERS AND BURR, 133, Upper Thames Street, London, E.C.

" WILSON AND CO., Grange Walk, Bermondsey, London, S.E.

" STRAKER BROS., Camomile Street, London, E.C.

" SPRATT, Biscuit Manufactory, Bermondsey, London, S.E.

" BRINSMEAD, Piano-Forte Manufactory, Ryland Road, Kentish Town, London, W.

" BREEDS AND CO., Hastings Brewery, Hastings.

" COULTHARD AND CO., Engineers, Richmond Street Iron-Works, Sunderland.

" HAMMERS, Blue Anchor Lane, Bermondsey, London, S.E.

" OASTLER AND PALMER, Tanners, Bermondsey, London, S.E.

" BARROW BROS., Tanners, Bermondsey, London, S.E.

" YOUNG AND CO., Tanners, Bermondsey, London, S.E.

" J. AVERY AND CO., Saw Mills, 3, Spencer Place, Victoria, London.

THE CROYDON GAS COMPANY, Croydon.

Mr. A. MARSHALL, Boiler Maker, Whitechapel, London, E.

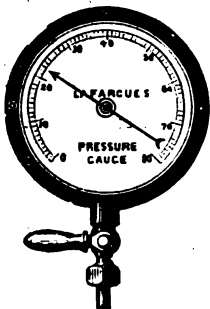
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OFFICES: 11, QUEEN VICTORIA STREET, LONDON, E.C.

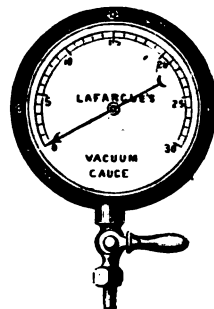


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**LONDON, E.C.,**



**SUPPLY PRESSURE, VACUUM, AND HYDRAULIC GAUGES,  
AND BRASS FITTINGS GENERALLY,**

**AS SUPPLIED TO H.M. GOVERNMENT, THE PRINCIPAL RAILWAY COMPANIES  
AND ENGINEERS DURING THE LAST FIVE YEARS.**

W. L. T. AND CO. beg to call the attention of Engineers and others to their Bourdon Gauges, fitted with Patent solid Enamel Dials, adapted for Steamships, Locomotives, and all other purposes where they are exposed to great heat, thereby preventing the obliteration of the figures, which frequently occurs in ordinary Gauges.

They are fitted with Nickel-Silver Centres and Tubes to prevent rust, or the Gauge from stopping if the glass should break or the steam get in.

**PRICE LIST OF GAUGES.**

With solid Gun-Metal Cases, Nickel-Silver Tubes and Arbours, highly finished, and tested by a mercurial column up to 30, 60, 80, 100, 150, and 200 lb. per square inch.

					£	s.	d.
7-inch diameter Gauges, with Gun-Metal Cock, complete	..	2	5	0			
6       "       "       "       "	..	2	0	0			
5       "       "       "       "	..	1	15	0			
4       "       "       "       "	..	1	10	0			

**A CONSIDERABLE REDUCTION MADE FOR LARGE QUANTITIES.**

**W. L. THOMPSON AND CO.,**

**OFFICES : 11, QUEEN VICTORIA STREET, LONDON, E.C.**



**W. L. THOMPSON AND CO.,**  
**METAL MERCHANTS AND MACHINERY AGENTS,**  
**CONTRACTORS FOR ALL KINDS OF IRON, STEEL, AND BRASS WORK,**  
**TOOLS AND IMPLEMENTS GENERALLY,**  
**11, QUEEN VICTORIA STREET, LONDON, E.C.**

*W. L. T. AND CO., having direct Agencies with the best Houses, are in a position to give low quotations for the undermentioned, viz.:*

**ENGINES :**

Vertical.  
 Horizontal.  
 Portable, &c., &c.

**BOILERS :**

Cornish.  
 Vertical.  
 Lancashire, &c.

**MISCELLANEOUS  
 MACHINERY, &c., &c.**

Grinding Mills for all purposes.  
 Sawing Machinery.  
 Reapers and Mowers.  
 Hay Makers.  
 Thrashing Machines.  
 Ploughs.  
 Cultivators.  
 Horse Gears of all kinds.  
 Dressing Machines.  
 Horse Rakes.  
 Harrows.  
 Bean Mills.  
 Corn Drills.  
 Rolls, Land.  
     " Garden.  
 Lawn Mowers.  
 Weighing Machines.  
 Chaff Cutters.  
 Root Pulpers.  
 Turnip Cutters.  
 Oil Cake Breakers.  
 Agricultural Carts } With  
 Brewers' " } Patent  
 Contractors' " } Tipping  
 Builders', &c. " } Apparatus.

Water Carts.  
 Manure Carts.  
 Wagons.  
 Asphalting Apparatus complete.  
 Avellers.  
 Corn Screens.  
     " Rick Stands.  
 Horse-power Pumps.  
 Mortar Mills.  
 Malt Kiln Stoves.  
 Knife Holders.  
 Hay Gatherers.  
 Grindstones, Portable.  
 Extirpators, Weed and Poppy.  
 Stacking Machines.

**IRON :**

Tools of all kinds.  
 Iron Roofs of all kinds.  
 Tanks and Cisterns } Cast and Wrought.  
 Rifle Targets.  
 Plates.  
 Bars.  
 Angles.  
 Tees.  
 Rails.  
 Hoops.  
 Nails.  
 Screws.  
 Bolts.  
 Nuts.  
 Galvanized Corrugated Sheets.  
 Black " "  
 Gas Tubes.  
 Steam "  
 Water "

Boiler Tubes.  
 Tube Fittings.  
 Iron Wire.  
 Galvanized Wire Rope.  
 Telegraph Wire.  
 Fencing "  
 Bar Fencing.  
 Gates.  
 Railings.  
 Lamp-posts, and all kinds of Castings.  
 Stable Fittings.  
     &c. &c.

**BRASS :**

Brass and Water Gauge Fittings.  
 Pressure Gauges.  
 Vacuum "  
 Cocks.  
     &c. &c. &c.

**STEEL :**

Plates.  
 Bars.  
 Hoops.  
 Files.  
     &c. &c.

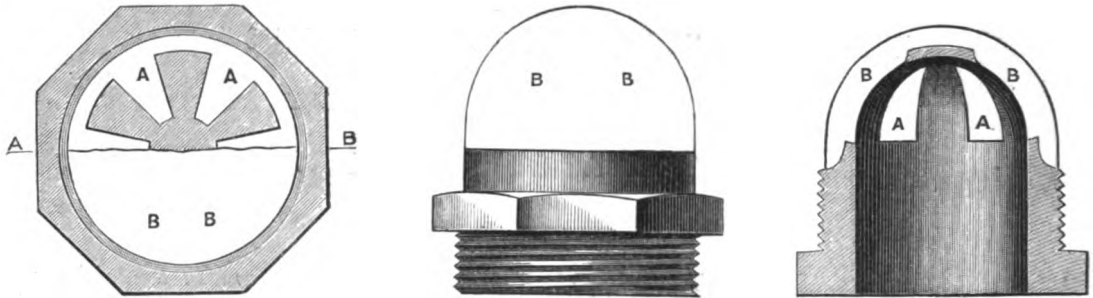
**LEAD.****ZINC.****COPPER.****YELLOW METAL.****SPELTER.**

    &c. &c. &c.

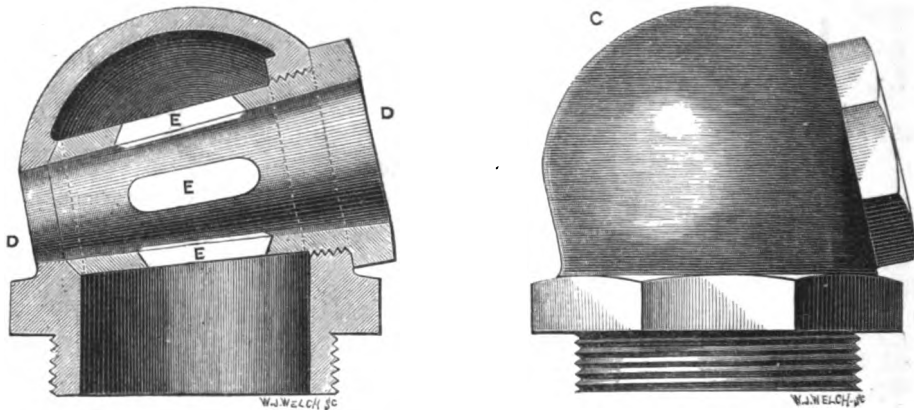
**W. L. THOMPSON AND CO.,**  
**OFFICES: 11, QUEEN VICTORIA STREET, LONDON, E.C.**

EXTENSIVELY ADOPTED BY ENGINEERS, BOILER MAKERS, AND USERS OF STEAM POWER THROUGHOUT THE UNITED KINGDOM AND ABROAD.

## SMITH'S PATENT EXCELSIOR FUSIBLE PLUG,



FOR PREVENTING EXPLOSIONS AND COLLAPSE OF FLUES FROM SHORTNESS OF WATER, Suitable for Land, Locomotive, Marine, and every class of Boiler.



The leading features of these Plugs are Novelty, Simplicity, and Efficiency. Incrustation, which the fatal objection to Fusible Plugs, is defied.

Nos. 1 and 2 Plugs are coated over with Fusible Metal, and the spaces filled in with same, see **A A** and **B B**; when the water gets below **A A** the metal directly fuses, and should any Incrustation be formed on the crown of the Plug, the same gives way from the metal yielding under it, and the steam and water rush through the spaces **A A**, and immediately put out the fire, thereby preventing Collapse of Flues or Explosion.

Nos. 3 and 4 Plugs. **C C** forms the Plug Chamber, **D D** the Circulating Tube, **E E E** the Fusible Metal run into the three spaces, which fuses immediately the water gets below the spaces named; the steam and water then rush through the spaces, and put out the fire as in the case of Nos. 1 and 2 Plugs.

A circulation of water takes place through the said tube, thereby preventing Incrustation doing any injury to the metal in same.

Instructions sent with all Plugs as to Fixing.

The Plugs are screwed to suit the following gas threads, viz. 1 inch, 1½ inch, 1¾ inch, and 2 inch.

Keys are forwarded, if required, to suit circulating tube, at 2s. 9d. each.

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